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## Phosphorus, Sulfur, and Silicon and the Related Elements

Publication details, including instructions for authors and subscription information: http://www.informaworld.com/smpp/title~content=t713618290

# Phosphorylation of 2-( N , N - Dimethylaminomethylidenamino)thiophenes(furans) with Phosphorus(III) Halides

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Online publication date: 27 October 2010

**To cite this Article** Kovalyova, Svetlana A., Ivonin, Sergey P., Tolmachev, Andrey A. and Pinchuk, Alexander M.(2002) 'Phosphorylation of 2-( N , N -Dimethylaminomethylidenamino)thiophenes(furans) with Phosphorus(III) Halides', Phosphorus, Sulfur, and Silicon and the Related Elements, 177: 8, 2183

To link to this Article: DOI: 10.1080/10426500213300 URL: http://dx.doi.org/10.1080/10426500213300

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Phosphorus, Sulfur and Silicon, 2002, Vol. 177:2183 Copyright © 2002 Taylor & Francis 1042-6507/02 \$12.00 + .00 DOI: 10.1080/10426500290095476 OR & FRA 1

## PHOSPHORYLATION OF 2-(N,N-DIMETHYLAMINOMETHYLIDE-NAMINO)THIOPHENES(FURANS) WITH PHOSPHORUS(III) HALIDES

Svetlana A. Kovalyova, Sergey P. Ivonin, Andrey A. Tolmachev, and Alexander M. Pinchuk National Academy of Sciences of Ukraine, Ukraine (Received July 29, 2001; accepted December 25, 2001)

It was found that, owing to the electron-donor effect of the N,N-dimethylaminomethylidenamino substituent at position 2 of the heterocycles, derivatives of the 2-(N,N-dimethylaminomethylidenamino)thiophene(furan) phosphorylated with phosphorus(III) halides at position 5 or 3 in benzene in the presence of triethylamine or in pyridine at  $20^{\circ}$ C.

#### **SCHEME 1**

The *N*,*N*-dimethylaminomethylidenamino and *N*-methylamino-(phenyl)methylidenoamino group have been used for construction of phosphorylated thienopyrimidines **5** and new phosphorus containing fused heterocycles **6**, **7**, **8**.

P Alk<sub>2</sub>N NAlk<sub>2</sub> Alk<sub>2</sub>N O 
$$Alk_2$$
 NAlk<sub>2</sub>  $Alk_2$   $Alk_2$ 

#### **SCHEME 2**

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